DOCUMENT RESUME

ED 336 771 CS 507 545

AUTHOR Yows, Suzanne R.
TITLE The Role of Perceived Threat in Reducing Health Knowledge Gaps.
PUB DATE May 91
NOTE 26p.; Paper presented at the Annual Meeting of the International Communication Association (41st, Chicago, IL, May 23-27, 1991).
PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Cancer; Communication Research; *Health Education; *Health Promotion; Information Sources; Mass Media Role; Media Research; Motivation; Public Health; *Socioeconomic Status
IDENTIFIERS Health Communication; *Knowledge Gap Hypothesis; Message Perception; Public Service Campaigns; Wisconsin

ABSTRACT

A study tested the knowledge gap hypothesis, a promising framework for research in the field of mass communication devised by P. Tichenor, G. Donohue, and C. Olien in 1970. The study investigated the relative contribution of two types of factors--structural and motivational--in predicting the degree to which persons will attend to health messages, and differentials in levels of knowledge about cancer. Secondary analysis was conducted on data collected in 1983 from a probability sample of Wisconsin households in which professional interviewers had completed 1,050 interviews at a response rate of 65%. Results indicated that motivation and focused exposure to health information are significant predictors of knowledge about cancer, and that the frequency of attending to media messages about health is not structurally determined (predicted by socioeconomic status, education and income), but instead, the result of concern about or interest in a person's own health. Results also revealed important differences between erroneous and correct knowledge, corroborating previous findings on knowledge typologies. These findings may validate information campaigns and the notion that people can be motivated to seek health information independent of their social location; they may also validate the wide variety of ongoing cancer information campaigns within that context. (Three figures and 4 tables of data are included; 26 references are attached.) (PRA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED336771

THE ROLE OF PERCEIVED THREAT IN REDUCING HEALTH KNOWLEDGE GAPS

Suzanne R. Yows

School of Journalism and Mass Communication
University of Wisconsin-Madison
Madison, WI 53706
(608) 263-3691

CS507545

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Suzanne Yows

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

THE ROLE OF PERCEIVED THREAT IN REDUCING HEALTH KNOWLEDGE GAPS

Suzanne R. Yows

School of Journalism and Mass Communication
University of Wisconsin-Madison
Madison, WI 53706
(608) 263-3691

ABSTRACT

In a test of the knowledge gap hypothesis, motivation and Focused Exposure to Health Information were found to be significant predictors of knowledge about cancer. First, the two indicators of motivation, Self Worry and Perceived Symptoms, predict Focused Exposure to Health Information. The two indicators of socioeconomic status, education and income, do not. This is an important finding because it appears to suggest that the frequency of attending to media messages about health is not structurally determined, but instead, the result of concern about or interest in one's health.

The role of motivational variables in predicting knowledge is not clearcut: Self Worry significantly predicts Correct Knowledge, and Perceived Symptoms predicts Information Holding. But, too much worrying may be dysfunctional for learning, as the interaction effects illustrate. In addition, Focused Exposure significantly predicts Information Holding and Correct Knowledge, and the effect on the latter is most dramatic among the least educated. Thus, we are left with a finding that motivational factors strongly predict Focused Exposure which, in turn, strongly predicts two of three types of knowledge. However, motivation has only modest influence on knowledge, although perhaps more for low education subgroups.

Results here have also revealed important differences between Erroneous and Correct Knowledge, corroborating previous findings on knowledge typologies. Knowing what is <u>not</u> a cause or symptom of cancer, i.e. Erroneous Knowledge, is predicted only by social structural variables. Knowing what <u>are</u> actual symptoms and causes of cancer , i.e. Correct Knowledge, is predicted more by Perceived Threat, Channel Selection, and Focused Exposure. Perhaps Correct Knowledge is information that has expert endorsement and has been more widely disseminated especially in the media.

These findings may validate information campaigns and the notion that people can be motivated to seek health information independent of their social location; they also may validate the wide variety of ongoing cancer information campaigns within that context. These campaigns focus on information as found in the measure of correct knowledge, and, as shown by the evidence here, may be overcoming knowledge barriers caused by social structural differences.

THE ROLE OF PERCEIVED THREAT IN REDUCING HEALTH KNOWLEDGE GAPS

One of the more promising frameworks for research in the field of mass communication has been provided by the knowledge gap hypothesis, first articulated by Phillip Tichenor, George Donohue and Clarice Olien (1970: 159-160):

> As the infusion of mass media information into a social system increases, segments of the population with higher socioeconomic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase rather than decrease.

Tichenor, Donohue and Olien originally examined the knowledge gap phenomenon in the context of public affairs knowledge, and noted that, under varying conditions, knowledge gaps could be either functional or dysfunctional for a social system. In the realm of public health, however, knowledge inequities are universally decried as threats to both to individual and collective safety. The ideal of equal distributions of knowledge across population subgroups is a valued goal of most public health efforts, an implicit test of the success or failure of health communication systems.

Previous research on health knowledge gaps has examined whether public information campaigns exacerbate or lessen knowledge differentials about cardiovascular health (e.g., Ettema, Brown and Luepker, 1983; Salmon, 1985; Finnegan, Viswanath, Hannan, Strickland and Hertog, 1989). In addition, Donohue, Olien and Tichenor (1990) recently applied the knowledge gap framework to an analysis of trends in knowledge and behavior regarding the use of tobacco. The present study applies the framework to examine persons' knowledge of cancer, with particular emphasis on the question of whether high levels of motivation can mitigate knowledge gaps stemming from differences in socioeconomic status and education.

Research Perspectives on the Knowledge Gap

Knowledge gap research has encompassed a diverse array of phenomena. Central to all knowledge gap studies has been the pursuit of an understanding of the causes of gaps. To date, researchers have either tested or speculated about a myriad of causes, ranging from macro-level systemic characteristics such as community pluralism or degree of conflict (Donohue, Tichenor and Olien, 1975; Olien, Tichenor and Donohue, 1982; Donohue, Olien and Tichenor, 1987) through mid- level factors such as social comparison with relevant others in peer groups (Rucinski and Ryu, 1991) to more micro-level characteristics such as differences in communication skills and cognitive abilities (Tichenor, Donohue and Olien, 1970) or lack of personal interest (Genova and Greenberg, 1979; Ettema and Kline, 1977).

Critics of knowledge gap research have argued that conceptualizing differences in levels of knowledge as "deficits" implicitly suggests that the less educated are somehow deficient and lacking in motivation or capabilities. Moreover, critics interpret this posture as blaming the victim rather than institutions (Gans, 1969; Dervin and Greenberg, 1972). Cole and Bruner (1971) contend that while there may be differences in cognitive schema and communication skills among lower social strata, there are no inherent deficits in cognitive ability. In other words, differences in performance are not attributable to underlying competence, but to the situations and contexts in which competence is expressed (Cole and Bruner, 1971).

In support of these views, Ettema and Kline (1979: 186) explain further that "persons from different social strata and/or cultures manifest their abilities in different circumstances" which "are predictable and reasonable given the differences in status or culture." These are circumstances in which the individuals are motivated to exercise their abilities and in which it is functional to do so. This interpretation may account for situations in which gaps are small or nonexistent. The probability of knowledge differentials is lower when it is functional for people to learn, when people are motivated to

learn, regardless of their social location. As a result, Ettema and Kline concluded that more research must be directed toward differences in motivation and function.

Motivation and Health

The domain of health is one which is likely to be relevant to audience segments irrespective of their social location. And yet we know with empirical certainty that health cognitions, attitudes and behaviors are highly subject to influences of socioeconomic status: "Social class is substantially related to values, interests in health, knowledge about health matters, and preventive health actions" (Mechanic, 1989: 20). It is reasonable to further assume that the conditions associated with socioeconomic status affect persons' perceptions and expectations of what is important to them, and these perceptions and expectations are directly related to the kinds of information they perceive to be most relevant. At the same time, we know that socioeconomic status is not entirely predictive of knowledge about and interest in health. For example, Ettema, Brown and Luepker (1983) found that, following a health information campaign, motivation was a stronger predictor of knowledge than was level of education. Other research suggests that perceiving a hazard can induce worry, which may serve to motivate persons to acquire more information about a risk that threatens them (Fischoff, Slovic and Lichenstein, 1982; Hohenemser, Kates and Slovic, 1983).

These latter studies suggest that knowledge gaps are not inevitable, nor are they always dependent upon differences in social structure. While those of lower socioeconomic status are likely to be the least informed on health matters vital to their well-being, there remains the possibility that all audiences, regardless of their social location, can be reached if health issues are communicated--and perceived--as relevant and motivating.

Variables and Their Relationships

This study investigates the relative contribution of two types of factors--structural and motivational--in predicting: (1) the degree to which persons will attend to health messages; and (2) differentials in levels of knowledge about cancer.

The variables of interest in this study are education, Perceived Threat, Channel Selection, Focused Exposure to Health Information, knowledge and Information Holding. As Gaziano (1983) notes, while knowledge gaps were conceptualized as stemming from one's position in social hierarchies, most knowledge gap studies have used education as a surrogate for socioeconomic status. Such is the case with this study.

Ettema et al. (1983) used as an indicator of motivation the "perceived threat of heart attack," which was measured by a single item. In evaluating this measurement, they encouraged continued exploration of ways to conceptualize and measure motivation. In the Health Belief Model, motivation is conceptualized as a psychological state of readiness, as measured in part by perceived susceptibility to an illness (Becker, 1974). Perceived susceptibilty and perceived threat are conceptually similar; they refer to the subjective risk of contracting a health condition. Thus, the individual's perception of risk is the determinant of individual action, which in this case is to seek information and learn.

Another concept of interest is Channel Selection, the sources an individual chooses to use to gain information about a particular subject. The whole notion of channel selection has a long and varied history in the field of communication. According to Chaffee (1986), channel selection depends jointly upon the accessibility of a channel and one's expectation that a particular channel will have relevant information. While individuals may prefer numerous channels when gathering information about a given topic, structural constraints may limit actual channel use. For example, compared to health professionals and informational agencies, media are likely to be a more accessible source of health information to many people, especially to those of lower socioeconomic status. In the present case, I

am interested in seeing whether the use of different types of channels, particularly interpersonal and mass communication, are related to knowledge gaps.

Focused Exposure to Health Information is another media construct specific to this study. This construct of media use is not the degree of concentration or effort in attending information, as it is sometimes defined as "attention" (Chaffee and Schleuder, 1986; McLeod and Kosicki, 1986). Neither can it be considered simple exposure to a medium because it is frequency of attending particular content. Borrowing from Swindel, et al. (1988), perhaps the notion of focused exposure as distinct from general exposure or attention best describes this construct.

Knowledge, the dependent variable in this study, is often defined and operationalized as factual knowledge: discrete bits of information such as names, dates, facts. Measurement of factual knowledge is typically the number of correct answers to a series of close-ended questions, and researchers judge beforehand what the respondent should know.

Beyond factual knowledge, the concept of "information holding" encompasses subjective information individuals have about a particular topic. As an alternative to strictly correct answers, information holding has been measured by open-ended questions, allowing respondents to define knowledge in their own terms (Clarke and Kline, 1974). Measures tap what respondents believe they know about a particular topic instead of what they "ought "to know. There is some evidence that use of this measurement instead of factual knowledge reveals less knowledge differentials (Gaziano, 1983).

In the specific context of health communication, previous research has attempted to differentiate between typologies of knowledge. For example, Salmon (1985) examined health knowledge gaps by distinguishing between "factual" and "belief" knowledge, corresponding to knowledge deemed factually correct by researchers versus knowledge held by respondents irrespective of its judged accuracy. In a related study, Finnegan et al.(1989) found that Minnesota Heart Heath Program did not exacerbate baseline differences between education groups on "emphasized knowledge," statements that heart attacks

are caused by controllable, lifestyle factors. In contrast, "non-emphasized knowledge"--statements that heart attacks are caused by uncontrollable factors--showed widening gaps over time. Salmon, Gentry and Jason (1990) found that knowledge gaps about AIDS were different according to the types of knowledge being measured: "true transmission," accurate statements about how AIDS is transmitted, and "false transmission," inaccurate statements about how AIDS is transmitted. "Factual" and "belief" knowledge (e.g. Salmon, 1985) correspond respectively to this study's factual knowledge and Information Holding. The knowledge constructs in Salmon, et al. (1990) are similar to the two dimensions of factual knowledge in this study: Correct Knowledge, correct statements about cancer, and Erroneous Knowledge, erroneous statements about cancer.

Hierarchical regression models were used to predict outcome variables, Focused Exposure to Health Information and the knowledge variables. A group of demographic or social structural variables--age, gender, income and education--were entered first in all cases. This is consistent with the primacy of such variables in knowledge gap explanation, and with my interest in conducting conservative tests of the other variables, after their covariation with these structural variables has been removed. The order of the other predictor variables--Perceived Threat, Channel Selection, and then Focused Exposure--corresponds to a possible time order of motivation, selection, and exposure. While I make no claim to have tested any sort of causal model with these regression analyses of cross-sectional data, the reader should be aware of the order chosen and the constraints this puts on variables entered later in the regression equation.

Two models were used to predict the relationships between variables. In the first model, Focused Exposure to Health information is predicted by age, gender, income, education, Perceived Threat and Channel Selection. In the second model, Focused Exposure is treated as an exogenous independent variable, and along with the above variables, predict the three ultimate outcome variables, Information Holding and indices of factual knowledge. Additional analysis compared high and low

education subgroups in the same basic model predicting the knowledge variables. The purpose of this last analysis was to determine if the knowledge gap between education subgroups is smaller for those who perceive a personal threat of cancer than for those who do not.

Methods

Sample Design

To examine these relationships, secondary analysis was conducted on data collected from a probability sample of Wisconsin households. This data set consists of responses from a state-wide probability sample of households selected by the Wisconsin Survey Research Laboratory.[1] Computer-generated random digit dialing provided a sampling frame of listed and unlisted telephone numbers throughout the state. In October 1983, a staff of professional interviewers completed 1050 interviews at a response rate of 65%. In households where there was more than one occupant, interviewers were instructed to request an interview with the person in the household most knowledgeable on health matters. As a result, about 75% of respondents were female and were likely to be the opinion leaders on health in their household. According to 1980 census data, this sample is on average slightly older and of higher income. Apart from these differences, the sample appears to be representative.

Measures

Predictor Variables

The first predictor variables are social structural: formal education, coded as years of schooling, and income, coded into a scale of eight income categories. Other demographic variables, age and gender, are included as control variables.

Perceived Threat Five items in the questionnaire were potentially relevant to the respondents'

perception's of perceived threat. Factor analysis revealed two independent factors with high with-in factor loadings of .75 or greater and small cross-factor loadings averaging .09. The first factor, labeled Self Worry, contained the following items: frequency of worrying about getting cancer, perceived likelihood of getting cancer, and chance of getting cancer compared to others. The second factor, labeled Perceived Symptoms, consisted of two five-point scale items: frequency of perceiving cancer symptoms and frequency of seeing a doctor for perceived cancer symptoms. The factor solutions showed both indices to be strong factors with Self Worry accounting for 45% of the variance, and Perceived Symptoms accounting for an additional 29%, for a total variance of 75%. Summative scales were created for Self Worry and Perceived Symptoms which had cronbach's alphas of.75 and .83 respectively.

Channel Selection. Respondents were given a list of twelve different sources and asked to identify those they might use for information about cancer.[2] The two aspects of this measure used are the number of media sources listed (television, radio, newspaper, and magazine) and the number of interpersonal sources (family members and friends). Additive indices were created for Media and Interpersonal sources, and the alphas were .67 and .44 respectively .

Focused Exposure to Health Information. Respondents were asked if when they see or hear an article or program concerning health matters or cancer, how often will they attend the message. Four items using five-point scales were for this measurement. Two items, one for print media and one for broadcast media, asked how frequently respondents' attend two different types of content: either health matters or cancer. The items were averaged to create an index of Focused Exposure accounting for 67% of the variance and having an alpha of .83.

Dependent Variables

The first dependent variable, Information Holding, is indexed by answers to an open-ended question asking about the causes of cancer. It is important to note that any cause mentioned by a

respondent, regardless of its correctness, was included in this measure. The alpha for this index was .76.

Correct and Erroneous Knowledge. Factual knowledge was operationalized by close-ended questions measuring respondents' knowledge about the causes and symptoms of cancer. Factor analysis identified two distinct dimensions of factual knowledge with within-factor loadings averaging .58, and cross-factor loadings averaging .10. The first factor, labeled Erroneous Knowledge, contains five items that make erroneous statements about the risks and symptoms of cancer: reduce risk, eat more fat foods; bumps and bruises cause cancer; most cancer caused by environmental pollution; breast lump always sign of cancer; taking large amounts of vitamins reduces risk. A high score on Erroneous Knowledge involved correctly rejecting false statements about cancer. The other factor, labeled Correct Knowledge, contains four items that are correct statements about cancer: reduce risk, avoid asbestos; reduce risk, stop smoking; a sign of cancer, sore does not heal; reduce risk, use sunscreen. The five Erroneous items and four Correct items were then summed to create two indices with alphas .49 and .44 respectively.[3]

Results

The first inquiry was to discover if there are knowledge gaps between high and low education segments. There is a statistically significant difference between knowledge means for each dependent variable. More educated have significantly higher mean scores than less educated[4] in Information holding ($t = 9.81$), Erroneous Knowledge ($t = 8.23$), and Correct Knowledge ($t = 4.08$).

Antecedents of Focused Exposure to Health Information

Analysis of Focused Exposure to Health Information was next undertaken using demographic variables, Perceived Threat indices Self Worry and Perceived Symptoms, and Channel Selection indices

as antecedents. Examination of uncontrolled coefficients and controlled partial coefficients yields the following results (Table 1). An important finding is that the social structural variables education and income do not play a role in predicting Focused Exposure. However, older respondents and women are more likely to focus on health and cancer information in the media. Another important element in this model seems to be Perceived Threat. After controlling for demographic variables, Perceived Threat adds a significant increment to the variance accounted for by all predictor variables. Both dimensions of Perceived Threat, Self Worry and Perceived Symptoms, are independent in the way they predict Focused Exposure. Worrying about getting cancer and perceiving you have cancer symptoms are not redundant predictors of focusing on health and cancer information. Using media sources for information about cancer are also associated with Focused Exposure. The incremental contributions of each of these antecedent variables, though not overwhelming, were still more significant than would have been obtained by chance.

Antecedents of Information Holding

Next examined were the above antecedent variables plus Focused Exposure in predicting each of the three outcome variables in this model. Uncontrolled coefficients and controlled partial coefficients were both included in this analysis (Table 2).

For Information Holding--the subjective and open-ended listing of number of cancer causes--demographic variables are quite important, with all four significantly related to Information Holding and accounting for 13% of the variance. Younger respondents, males, and those with higher incomes listed more causes of cancer. But education was the best single predictor among the demographic variables. After controlling for demographic variables, each of the individual-level variables added a small but significant amount of variance. In particular, perceiving oneself to have possible cancer symptoms, using media sources for cancer information, and focusing on health and cancer information are all associated with listing more causes of cancer.

Erroneous vs. Correct Knowledge

The picture is rather different for the two dimensions of factual knowledge: Correct Knowledge, knowing some of the actual symptoms and causes of cancer; and Erroneous Knowledge, knowing that other symptoms and causes are not correct. For Erroneous Knowledge, the social structural and other demographic variables are significant predictors (incremental r^2 = .24). Education and income are positively related, and younger respondents and women are more likely to know which symptoms and causes are incorrect. None of the psychological or communication variables add significantly to the model.

For Correct Knowledge, gender and education are the only significant predictors among the demographic factors, and they predict much less of the variance than the Erroneous Knowledge (incremental r^2= .04) Further, Self Worry, use of media sources for cancer information, and Focused Exposure to Health Information are significant predictors as well. Although more variables emerge as significant predictors of Correct Knowledge, the predictive power of the model as a whole is less than for either Information Holding or Erroneous Knowledge.

Comparison of Education Subgroups

In order to see if the individual's Perceived Threat of cancer would be more important in predicting knowledge for those with less education, or to see if the gap between education subgroups would be smaller for those who perceive a threat of cancer, comparisons were made between low and high education subgroups (Tables 3 & 4).

For subjective Information Holding, Perceived Symptoms of cancer was slightly more related for the low education group (beta = .09, $p < .05$) than for the high education group (beta = .02, not significant). For Erroneous Knowledge, no betas were significantly different from zero, although for Self Worry, the beta for the low education group was slightly larger (.03 vs. .00). And for Correct

Knowledge, the Self Worry beta was .08 ($p < .05$) for low education and .02 (not significant) for the high education group. While these differences are not large, the consistency of the trend provides some encouragement. It may be that Perceived Threat of cancer is more important in predicting knowledge among less educated than more educated.

Interactions

Interaction effects were examined between Education, Perceived Threat and Focused Exposure for each of the dependent variables. Three interaction terms were revealed: an interaction between Focused Exposure and Education was significant for Correct Knowledge, and two interaction terms between Focused Exposure and Perceived Threat were significant for both Correct Knowledge and Erroneous Knowledge (Table 2). It should be noted that while the main effects of Focused Exposure and Perceived Threat are not significant in predicting Erroneous Knowledge the interaction effect is marginally significant.

Three graphs illustrate these interaction effects (Figures 1.-3.). Figure 1. reveals the relationship between Focused Exposure and Education in predicting Correct Knowledge. The overall relationship is positive with both independent variables increasing Correct Knowledge. The most interesting finding is that exposure to health information has the most dramatic effect among the least educated; whereby, increased exposure nearly supplants education in knowledge gain.

Focused Exposure and the Self Worry dimension of Perceived Threat interact in predicting both Erroneous and Correct Knowledge (Figures 2 & 3). However, the relationships are very different for each. The overall relationship for Erroneous Knowledge is negative whereas for Correct Knowledge it is positive. That is, worrying and increasing exposure leads to not knowing when false statements about cancer are false (Erroneous Knowledge). But, conversely, worrying and exposure increase correct knowledge about cancer. Worrying substitutes for Focused Exposure in Correct Knowledge except

among the those who worry the most. A similar finding for both knowledge variables is that increased worrying seems to be negatively related to knowledge. The negative effect on Erroneous Knowledge is most dramatic among those that worry the most, and for Correct Knowledge worrying at the highest level also has a negative effect above medium levels of exposure. It may be that too much worrying may be dysfunctional to learning.

Summary and Conclusions

One goal of this study was to better understand the conditions under which knowledge gaps are likely to occur. Based upon our review of the literature, I expected both socioeconomic status and motivation to significantly predict knowledge about cancer. Some evidence was found for both predictions.

First, the two indicators of motivation, Self Worry and Perceived Symptoms, predict Focused Exposure to Health Information. The two indicators of socioeconomic status, education and income, do not. This is an important finding because it appears to suggest that the frequency of attending to media messages about health is not structurally determined, but instead, the result of concern about or interest in one's health. This is potentially a source of optimism for planners of health campaigns, who are more capable of heightening concern than altering social class.

Because Focused Exposure represents an input stage of information processing, a precursor to knowledge about a topic, one might expect to find parallel results for the analysis of knowledge variables. However, this was not the case. Only two variables, gender and level of education, are significant predictors of all three types of knowledge--Information Holding, and Erroneous and Correct Knowledge. This result is testament to the robustness of education--and indeed, gender--as a determinant of knowledge about health. At the same time, education is not uniformly influential in predicting all genres of knowledge; it appears to be a relatively stronger predictor of certain types of

knowledge (Information Holding and Erroneous Knowledge) than others (Correct Knowledge). In addition, the other indicator of socioeconomic status, income, only modestly predicts two forms of knowledge. Contrary to previous research, education is not a stronger predictor of closed-ended measures of knowledge than of open-ended ones.

The role of motivational variables in predicting knowledge is less clearcut: Self Worry significantly predicts Correct Knowledge, and Perceived Symptoms predicts Information Holding. But, too much worrying may be dysfunctional for learning, as the interaction effects illustrate. In addition, Focused Exposure significantly predicts Information Holding and Correct Knowledge, and the effect on the latter is most dramatic among the least educated. Thus, one is left with the finding that motivational factors strongly predict Focused Exposure which, in turn, strongly predicts two of three types of knowledge. However, motivation has only modest influence on knowledge, although perhaps more for low education subgroups.

There are at least two explanations for this. The first explanation stems from the notion of differential access to information. That is, the operationalization of focused exposure involves asking respondents how often they will attend to a message <u>when they see or hear one</u>. Persons of high socioeconomic status could acquire more knowledge in absolute terms because they are extracting the same proportion from a larger base of information. The second explanation is similar to one proposed by Tichenor et al. (1970), who proposed that persons of high education tend to have more stored knowledge and may therefore be more capable of adding to that knowledge base. In both cases, the ability of a person with high motivation to attain knowledge would still be constrained by socioeconomic status--mainfested either as access to information or processing capabilities.

Results here have also revealed important differences between Erroneous and Correct Knowledge, corroborating previous findings on knowledge typologies (e.g. Salmon, 1985; Salmon, Gentry and Jason, 1990; Finnegan et al., 1989). Knowing what is <u>not</u> a cause or symptom of cancer,

i.e. Erroneous Knowledge, is predicted only by social structural variables. Knowing what are actual symptoms and causes of cancer , i.e. Correct Knowledge, is predicted more by Perceived Threat, Channel Selection, and Focused Exposure. Perhaps Correct Knowledge is information that has expert endorsement and has been more widely disseminated especially in the media. If so, this helps explain why the media variables predict Correct Knowledge but not Erroneous Knowledge.

These findings may validate information campaigns and the notion that people can be motivated to seek health information independent of their social location; they also may validate the wide variety of ongoing cancer information campaigns within that context. These campaigns focus on information as found in the measure of correct knowledge, and, as shown by the evidence here, may be overcoming knowledge barriers caused by social structural differences.

These findings suggest important implications for cancer information campaigns and health communicators. In addition to focusing on correct information about cancer, perhaps separate campaigns should focus on misconceptions about cancer. As shown here, social structural variables are still the main predictors of not having misconceptions about cancer. Second, it is important to recognize the potential role of Perceived Threat in motivating those of less education and lower socioeconomic status to seek information, as this study has provided additional support for the potential of that role.

Regardless of the origins, knowledge gaps remain antithetical to the goals of public health. Although the findings of this paper supply limited optimism by demonstrating the modestly significant influence of motivation on the acquisition of knowledge, they simultaneously demonstrate the persistence of knowledge gaps due to socioeconomic status. Future research is needed to further specify the conditions under which motivation might supercede level of education as a determinant of knowledge.

ENDNOTES

[1]Data collection was supported by the National Cancer Institute aggreement #NO1-CN-25568 to the University of Wisconsin, Madison. The author wishes to express her appreciation to doctoral students Kurt Neuwirth and Hsiu-Hui Sun for their contribution to this project.

[2]The sources for Channel Selection included doctor, other health agency, family member, friend, library, two cancer information services, and four different media sources.

[3]The Pearson correlation coefficients examine the relationships between these dependent variables. Lastly, the Erroneous and Correct Knowledge are moderately correlated at and are significant at ($p \leq .05$).

[4]Low education included up to 12 years of education, and high education included 13 years and beyond.

REFERENCES

Becker, Marshall (ed.) (1974). *The Health Belief Model and Personal Health Behavior*. Thorofaire, New Jersey: Charles B. Slack, Inc.

Bishop, M. and P. McMartin (1973). "Toward a Socio-Psychological Definition of Transitional Persons." *Journal of Broadcasting*, 17, 333-344.

Chaffee, S. H. (1986). "Mass Media and Interpersonal Channels: Competitive, Convergent, or Complementary?" In G. Gumpert & R. Cathcart (eds.) *Inter/Media* , 3rd. ed. New York: Oxford University Press.

Chaffee, S.H. and J. Schleuder (1986). "Measurement and Effects to Attention to News Media." *Human Communication Research*, 13, 76-107.

Clarke, P. and F.G. Kline (1974). "Media Effects Reconsidered: Some New Strategies for Communication Research." *Communication Research* , 2, 224-240.

Cole, M. and J. Bruner (1971). "Cultural Differences and Inferences About Psychological Process," *American Psychologist*, 26, 867-876.

Dervin, B. and B. Greenberg (1972). "The Communication Environment of the Urban Poor," in F. Kline and P. Tichenor (eds.) *Current Perspectives in Mass Communication Research*. Beverly Hills, CA: Sage.

Donohue, G., P.Tichenor and C. Olien (1975) Mass Media and the Knowledge Gap: A Hypothesis Reconsidered. *Communication Research*, 2, 3-23.

Donohue, G., C. Olien and P. Tichenor. (1987). "Media Access and Knowledge Gaps." *Critical Studies in Mass Communication*, 4, 87-92.

Donohue G., C. Olien and P.Tichenor (1990). "Knowledge Gaps and Smoking Behavior." Paper presented at the American Association for Public Opinion Research, Lancaster Pennsylvania.

Ettema, J., J. Brown, and R. Luepker. (1983). "Knowledge Gap Effects in a Health Information Campaign." *Public Opinion Quarterly*, 47, 516-527.

Ettema, J. and F. Kline (1977). "Deficits, Differences, and Ceilings: Contingent Conditions for Understanding the Knowledge Gap." *Communication Research*, 4, 179-202.

Finnegan, J. R., K. Viswanath, P. Hannen, D. Strickland and J. Hertog. (1989) "Risk Factor 'Knowledge Gap' Effects In a Heart Disease Prevention Campaign: A Longitudinal Study of Three Community Pairs," a Top Three Paper in the Health Communication Division of International Communication Association, San Francisco, California.

Fischhoff, B., P. Slovic, and S. Lichtenstein (1982). "Lay Foibles and Expert Fables in Judgments

about Risk." *The American Statistician*, 36, 240-255.

Gans, H. (1969). "Cultural and Class in the Study of Poverty," in D. Moynihan (ed.) *On Understanding Poverty*. New York: Basic Books.

Gaziano, C. (1983). "The Knowledge Gap: An Analytical Review of Media Effects." *Communication Research*, 4, 447-486.

Genova, B. and B. Greenberg (1979). "Interest in News and the Knowledge Gap." *Public Opinion Quarterly*, 43, 79-91.

Hohenemser, C., R.W. Dates and P. Slovic (1983). "The Nature of Technological Hazard." *Science*, 220: 376-384.

McLeod, J.M. and G.M. Kosicki (1986). "Paying Attention to the Concept of Attention in Mass Media Reseach." Paper presented to the Midwest Association for Public Opinion Research, Chicago, Illinois.

Mechanic, David (1989). "Socioeconomic Status and Health: The Problem," in J. Bunker, D. Gomby and B. Kehrer (ed.) *Pathways to Health*. Menlo Park: The Henry J. Kaiser Family Foundation.

Olien, C., P. Tichenor and G. Donohue (1982). "Structure, Communication and Social Power: Evolution of the Knowledge Gap Hypothesis." *Mass Communication Review Yearbook*, 4. Beverly Hills, CA: Sage.

Rucinski, D.M. and C. Ryu (1991). "Social Comparison and the Knowledge Gap." A Top Three paper in the Mass Communication Division of the International Communication Association, Chicago. Illinois.

Salmon, C.T. (1985). "The Role of Involvement in Health Information Acquistion and Processing." Doctoral Dissertation, University of Minnesota.

Salmon, C.T., E. Gentry and J. Jason (1990) "AIDS Knowledge Gaps." Unpublished Manuscript. Centers for Disease Control. Atlanta, Georgia.

Swindel, S.H., S.A. Lindstrom and R.C. Sathoff (1988). "Media Use and Knowledge about Science and Technology: The Effects of General Exposure, Focused Exposure and Focused Attention." Paper presented to the Association for Education in Journalism and Mass Communication, Portland, Oregon.

Tichenor, P., G. Donahue and C. Olien (1970). "Mass Media Flow and Differential Growth In Knowledge." *Public Opinion Quarterly*, 34, 159-170.

Figure 1.
Education/Focused Exposure

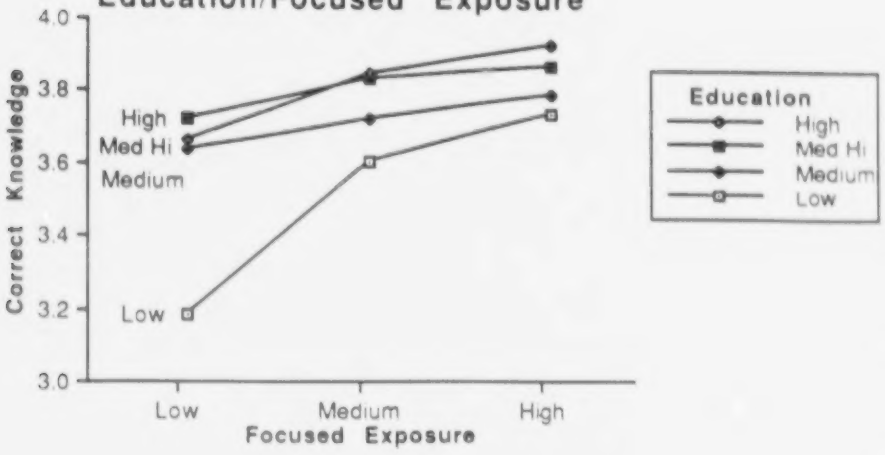

Figure 2.
Focused Exposure/Self Worry

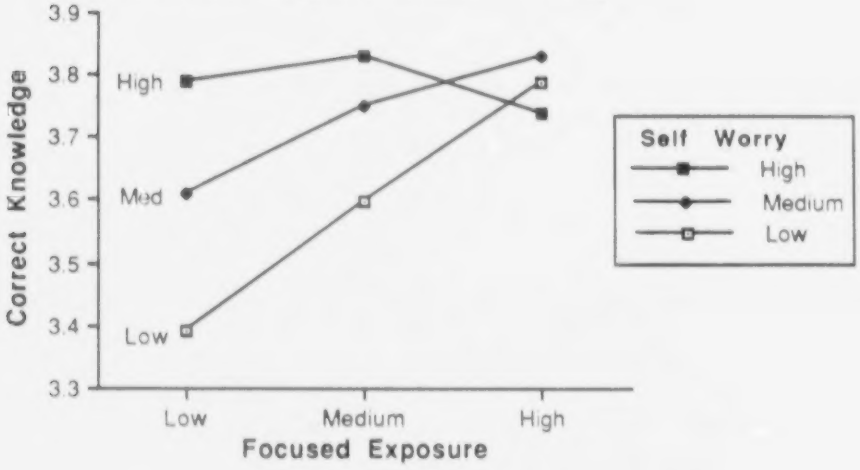

Figure 3.
Focused Exposure/Self Worry

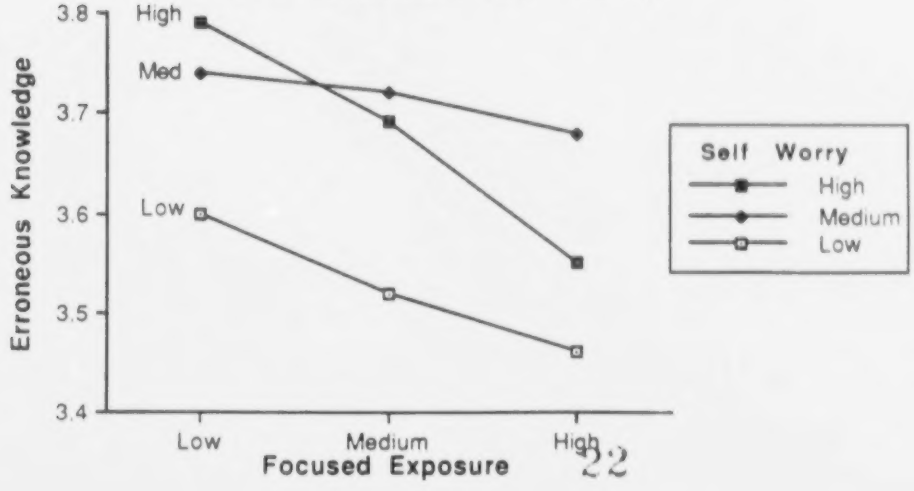

TABLE 1:
PREDICTION OF FOCUSED EXPOSURE TO HEALTH INFORMATION
(Hierarchical Multiple Regression)

Variables	Zero-Order	Beta	Incremental
Income	.02	.02	
Gender	-.10*	-.10*	
Age	.07*	.09*	
Education	-.03	-.02	.02*
Perceived Threat:			
Self Worry	.17*	.21*	
Perceived Symptoms	.12*	.12*	.04*
Channel Selection			
Interpersonal	.00	.02	
Media	.09*	.08*	.01*
Total R^2			.07*
Adjusted R^2			.06*

Note: * = $p \leq .05$
n = 1050
Coding: Gender (female=0; male=1)

TABLE 2:
PREDICTION OF INFORMATION HOLDING AND KNOWLEDGE OF TOTAL SAMPLE
(Hierarchical Multiple Regression)

	Information Holding		Erroneous Knowledge		Correct Knowledge	
Variables	Beta	Incr.	Beta	Incr.	Beta	Incr.
Income	.07**		.06*		.03	
Gender	.06*		-.15**		-.07*	
Age	.09**		-.31**		-.05	
Education	.26**	.13**	.23**	.24**	.13**	.04**
Perceived Threat:						
Self Worry	-.02		.03		.07*	
Perceived Symptoms	.07**	.01*	.05	.00	.05	.02**
Channel Selection						
Interpersonal	.00		-.02		-.02	
Media	.11	.02**	.04	.00	.06*	.01*
Focused Exposure to Health Information	.16**	.02**	-.03	.00	.20**	.04**
Interactions:						
Education/Focused Exp.	.16	.00	-.05	.00	-.28**	.004*
Focused Exp./Worry	-.03	.00	-.06*	.003*	-.12**	.01**
Total R^2		.17**		.25**		.10**
Adjusted R^2		.17**		.24**		.09**

Note: ** = p≤.01 * = p≤.05
Entries are zero-order correlations, standardized betas, and incremental variance.
n=1050 Coding: Gender (female=0; male=1)

TABLE 3:
PREDICTION OF KNOWLEDGE INDICATORS BETWEEN HIGH AND LOW EDUCATION SUBGROUPS
(Hiearchical Multiple Regression)

	Erroneous Knowledge				Correct Knowledge			
	Low Education		High Education		Low Education		High Education	
Variables	Beta	Incr.	Beta	Incr.	Beta	Incr.	Beta	Incr.
Income	.07*		.16**		.08**		.01	
Gender	.16**		-.13**		-.06		-.09	
Age	-.36**		-.30**		-.06		-.05	
		.20**		.12**		.02**		.01
Perceived Threat:								
Self Worry	.03		.00		.08*		.02	
Perceived Symptoms	.05		.03		-.06		.04	
		.004		.001		.02**		.007
Channel Selection								
Interpersonal	.03		-.16*		-.01		-.04	
Media	.07*		.04		.04		.13**	
		.006		.02**		.00		.02*
Focused Exposure to Health Information	-.04	.004	-.01	.00	.21**	.04**	.18**	.03**
Total R^2		.21**		.15**		.09**		.07**
Adjusted R^2		.20**		.13**		.07**		.05**

Note: ** = p≤.01 * = p≤.05 Entries are standardized betas and incremental variance.
Low Education n=694; High Education n=356
Coding: Gender (female=0; male=1)

TABLE 4:
PREDICTION OF INFORMATION HOLDING BETWEEN HIGH AND LOW EDUCATION SUBGROUPS
(Hierarchical Multiple Regression)

	Low Education		High Education	
Variables	Beta	Incr.	Beta	Incr.
Income	.11*		.08**	
Gender	.04		.09	
Age	-.15*	.05*	-.08	.02**
Perceived Threat:				
Self-Worry	-.03		.00	
Perceived Symptoms	.09**	.01**	.02	.003
Channel Selection				
Interpersonal	.02		-.06	
Media	.14*	.02*	.11**	.02*
Focused Exposure to Health Information	.15**	.02**	.20**	.04**
Total R2		.10**		.08**
Adjusted R2		.09**		.06**

Note: ** = p≤.01 * = p≤.05 Entries are standardized betas and incremental variance.
Low Education n=694; High Education n=356
Coding: Gender (female=0; male=1)